

WHAT IS CLAIMED IS:

1. A powder coating composition extruder comprising:
  - one or more rotating screws;
  - a plurality of adjacent segments surrounding the rotating screw(s), each of the segments including a cooling system for cooling material in the segment, and a heating system for heating material in the segment, wherein the cooling system and the heating system of each of the segments can be selectively, independently operated, one of the segments having an inlet for receiving material into the extruder and one of the segments having an outlet for discharging material from the extruder; and
    - an additive injector for injecting one or more hard to incorporate additives into at least one segment at an injection position at the inlet or between the inlet and the outlet.
2. The extruder of Claim 1, wherein the injector includes a pressure vessel, and a flow regulator between the pressure vessel and the injection position.
3. The extruder of Claim 2, further including a source of pressurization coupled to the pressure vessel for pressurizing the pressure vessel.
4. The extruder of Claim 3, further including a mechanism for maintaining the pressure in the pressure vessel less than about 100 PSI.
5. The extruder of Claim 3, wherein each cooling system includes a cooling fluid inlet and outlet in each segment.
6. The extruder of Claim 3, further including a pre-mix hopper and a mechanical feeder extending from an exit of the pre-mix hopper to the inlet of the extruder.

7. A low pressure liquid additive injector for an extruder comprising:
  - a low pressure vessel;
  - a source of pressurization coupled to the pressure vessel;
  - a mechanism for maintaining the pressure in the pressure vessel less than about 100 PSI;
  - a flow regulator coupled to the pressure vessel; and
  - an injector outlet downstream of the flow regulator.
8. A powder coating composition extruder system with dynamic additive control comprising:
  - a pre-mix hopper adapted to hold a base material;
  - one or more rotating screws;
  - a plurality of adjacent segments surrounding the rotating screw(s), each of the segments including a fluid cooling system for cooling material in the segment, and a heating system for heating material in the segment, wherein the cooling system and the heating system of each of the segments can be selectively, independently operated, a first segment having a main inlet for receiving material from the pre-mix hopper and a final segment having an outlet for discharging material from the extruder;
  - a low pressure additive injector for injecting one or more liquid additive(s) into one or more chambers at a position at the main inlet or between the main inlet and the outlet, wherein the additive injector includes a low pressure vessel, a source of pressurization coupled to the pressure vessel, a mechanism for maintaining the pressure in the pressure vessel less than about 100 PSI, a flow regulator coupled to the pressure vessel, and an injector outlet downstream of the flow regulator; and
  - a monitor adjacent the outlet monitoring the characteristics of the coating composition and coupled to a controller for the additive injector.

9. The extruder system of Claim 8, wherein each cooling system includes a cooling fluid inlet and outlet in each segment, and each heating system includes a heating element.

10. The extruder system of Claim 8, further including a mechanical feeder extending from an exit of the pre-mix hopper to the main inlet.

11. The extruder system of Claim 10, including a single motor driving the rotating screws and the mechanical feeder.

12. The extruder system of Claim 8, wherein the position at which injection occurs is spaced along the extruder system at least one segment from the main inlet.